ABSTRACT

The present invention provides various techniques useful for a double-resonance-absorption microscope which realizes a super-resolution by using a double resonance absorption. As one technique, there is provided a double-resonance-absorption microscope comprising a light source for a pump light of a wavelength λ_1 which excites a sample molecule to a first electronic excited state from a ground state, a light source for an erase light of a wavelength λ_2 which excites the sample molecule to a second electronic excited state or a higher excited state from the first electronic excited state and overlap means for partially overlapping irradiating areas of the pump light and the erase light with each other, wherein an emission area upon deexcitation of the sample molecule to the ground state from the first electronic excited state is partially inhibited by irradiating the pump light and the erase light through the overlap means, said double-resonance-absorption microscope characterized in that there is provided, on an optical path of the erase light, a spatial filter which has a condenser lens and a collimate lens and a pinhole therebetween and performs condensing of the erase light onto the pinhole by the condenser lens and collimating of the erase light passed through the pinhole into a parallel beam by the collimate lens.